

SEQUENCE LISTING

<110> Brown, Arthur
 Wible, Barbara
 Yang, Qing

<120> Protein That Enhances Expression of Potassium Channels on Cell Surfaces and Nucleic Acids That Encode The Same

<130> 22884/04066

<150> 09/062,440

<151> 1998-04-17

<150> 09/712,495

<151> 2000-11-14

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<170> PatentIn version 3.0

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<212> DNA

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gta ggc tcc ccc agc ccc ctt gct tcc att cct ccc acc ctc ctg acc
 144

Val Gly Ser Pro Ser Pro Leu Ala Ser Ile Pro Pro Thr Leu Leu Thr

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cct ggc acc ttg ctg ggc cct aag cgt gag gtg gac atg cac cct cct
192

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro

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Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe

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tac gaa gtc tac gga gag ctc atc cgg ccg acc acc ctt gcg tcc acc
288

Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr

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tcc agt cag agg ttt gag gaa gcc cac ttt acc ttt gca ctc act ccc
336

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro

100

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cag cag ctg cag cag att ctc aca tcc agg gag gtt ctg cca gga gcc
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Gln Gln Leu Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala

115

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aag tgc gat tat acc ata caa gtg cag ctc agg ttc tgt ctc tgt gag
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Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu

130

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acc agc tgc ccc cag gag gac tat ttc ccc cct aac ctc ttt gtc aag
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 Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
 165 170 175

aat gga gct gag ccc aag agg cct agt cgt cca atc aac atc aca ccc
 576
 Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro
 180 185 190

ctg gct cgt ctc tca gcc act gtt ccc aac acc ata gtg gtt aac tgg
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 Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
 195 200 205

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 210 215 220

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 Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
 225 230 235 240

cgg aat cca gac cat tcc cga gca ctg atc aag gag aaa ttg act gct
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 Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
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gac ccc gac agt gaa gtg gct act aca agt ctc cgg gtg tca ctc atg

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Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr

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tgt gcc cac ctg cag agt ttc gat gct gcc ctt tat cta cag atg aat

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Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn

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gag aaa aag cca aca tgg acg tgc cct gtg tgt gac aag aag gct ccc

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Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro

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tat gag tca ctg att att gat ggt tta ttc atg gaa att ctt aat tcc

1008

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser

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Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys

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Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly

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Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Pro Val

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acc tcg gct gcc att cca gcc ctt cct gga agc aaa gga gcc ctg acc
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Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Ala Leu Thr

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tct ggt cac cag ccg tct tcg gtg ctg cgg agc cct gca atg ggt aca
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Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr

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ctg ggc agt gat ttc ctg tct agt ctc cca cta cat gag tac cca cct
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Leu Gly Ser Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro

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Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe

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475

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Leu Gln Thr Glu Ser Gln His Tyr Ser Pro Ser Val Ile Thr Ser Leu

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490

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gat gag cag gac acc ctt ggc cac ttc ttc caa ttc cgg gga acc cct
1536

Asp Glu Gln Asp Thr Leu Gly His Phe Phe Gln Phe Arg Gly Thr Pro

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505

510

ccc cac ttc ctg ggc cca ctg gcc ccc aca ttg ggg agc tct cac cgc
1584

Pro His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Arg

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520

525

agc gcc act cca gca ccc gct cct ggc cgt gtc agc agc att gtg gct
1632

Ser Ala Thr Pro Ala Pro Ala Pro Gly Arg Val Ser Ser Ile Val Ala

530

535

540

cct ggg agt tcc ttg agg gaa ggg cat gga gga ccc ctg cct tcc ggt
1680

Pro Gly Ser Ser Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly

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555

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35 40 45

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
50 55 60

Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
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Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr
85 90 95

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro
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Gln Gln Leu Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala
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Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu
130 135 140

Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
145 150 155 160

Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
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Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro

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Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
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Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg
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Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
 225 230 235 240

Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
 245 250 255

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met
 260 265 270

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr
 275 280 285

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn
 290 295 300

Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro
 305 310 315 320

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser
 325 330 335

Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys
 340 345 350

Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly
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ggg ccc tct gat ctc tcc ctt ctc tct ttg ccc cct ggc acc tct cct
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 Gly Pro Ser Asp Leu Ser Leu Leu Ser Leu Pro Pro Gly Thr Ser Pro
 20 25 30

gta ggc tcc cct ggt cct cta gct ccc att ccc cca acg ctg ttg gcc
 144
 Val Gly Ser Pro Gly Pro Leu Ala Pro Ile Pro Pro Thr Leu Leu Ala
 35 40 45

cct ggc acc ctg ctg ggc ccc aag cgt gag gtg gac atg cac ccc cct
 192
 Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
 50 55 60

ctg ccc cag cct gtg cac cct gat gtc acc atg aaa cca ttg ccc ttc
 240
 Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
 65 70 75 80

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Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr

85

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95

tct agc cag cgg ttt gag gaa gcg cac ttt acc ttt gcc ctc aca ccc
336

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro

100

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110

cag caa gtg cag cag att ctt aca tcc aga gag gtt ctg cca gga gcc
384

Gln Gln Val Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala

115

120

125

aaa tgt gat tat acc ata cag gtg cag cta agg ttc tgt ctc tgt gag
432

Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu

130

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140

acc agc tgc ccc cag gaa gat tat ttt ccc ccc aac ctc ttt gtc aag
480

Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys

145

150

155

160

gtt aat ggg aaa ctg tgc ccc ctg ccg ggt tac ctt ccc cca acc aag
528

Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys

165

170

175

aat ggg gcc gag ccc aag agg ccc agc cgc ccc atc aac atc aca ccc
576

Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro

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185

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Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp

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tca tct gag ttc gga cgg aat tac tcc ttg tct gtg tac ctg gtg agg
672

Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg

210

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cag ttg act gca gga acc ctt cta caa aaa ctc aga gca aag ggt atc
720

Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile

225

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cgg aac cca gac cac tcg cgg gca ctg atc aag gag aaa ttg act gct
768

Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala

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gac cct gac agt gag gtg gcc act aca agt ctc cgg gtg tca ctc atg
816

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met

260

265

270

tgc ccg cta ggg aag atg cgc ctg act gtc cct tgt cgt gcc ctc acc
864

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr

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tgt gcc cac ctg cag agc ttc gat gct gcc ctt tat cta cag atg aat
912

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn

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20070220-14054007

gag aag aag cct aca tgg aca tgt cct gtg tgt gac aag aag gct ccc
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Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro

305 310 315 320

tat gaa tct ctt atc att gat ggt tta ttt atg gag att ctt agt tcc
1008

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Ser Ser

325 330 335

tgt tca gat tgt gat gag atc caa ttc atg gaa gat gga tcc tgg tgc
1056

Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys

340 345 350

cca atg aaa ccc aag aag gag gca tct gag gtt tgc ccc ccg cca ggg
1104

Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly

355 360 365

tat ggg ctg gat ggc ctc cag tac agc cca gtc cag ggg gga gat cca
1152

Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Gly Gly Asp Pro

370 375 380

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1200

Ser Glu Asn Lys Lys Lys Val Glu Val Ile Asp Leu Thr Ile Glu Ser

385 390 395 400

tca tca gat gag gag gat ctg ccc cct acc aag aag cac tgt tct gtc
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	tct ggc cac cag cca tcc tcg gtg cta agg agc cct gct atg ggc acg				
	1344				
	Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr				
	435		440		445
	ttg ggt ggg gat ttc ctg tcc agt ctc cca cta cat gag tac cca cct				
	1392				
	Leu Gly Gly Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro				
	450		455		460
	gcc ttc cca ctg gga gcc gac atc caa ggt tta gat tta ttt tca ttt				
	1440				
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	ctt cag aca gag agt cag cac tat ggc ccc tct gtc atc acc tca cta				
	1488				
	Leu Gln Thr Glu Ser Gln His Tyr Gly Pro Ser Val Ile Thr Ser Leu				
	485		490		495
	gat gaa cag gat gcc ctt ggc cac ttc ttc cag tac cga ggg acc cct				
	1536				
	Asp Glu Gln Asp Ala Leu Gly His Phe Phe Gln Tyr Arg Gly Thr Pro				
	500		505		510
	tct cac ttt ctg ggc cca ctg gcc ccc acg ctg ggg agc tcc cac tgc				
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agc gcc act ccg gcg ccc cct cct ggc cgt gtc agc agc att gtg gcc
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Ser Ala Thr Pro Ala Pro Pro Pro Gly Arg Val Ser Ser Ile Val Ala

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cct ggg ggg gcc ttg agg gag ggg cat gga gga ccc ctg ccc tca ggt
1680

Pro Gly Gly Ala Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly

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555

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35 40 45

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
50 55 60

Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
65 70 75 80

Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr
85 90 95

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro
100 105 110

Gln Gln Val Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala
115 120 125

Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu
130 135 140

Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
145 150 155 160

Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
165 170 175

Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro
180 185 190

Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
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Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg
210 215 220

Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
225 230 235 240

Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
245 250 255

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Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn
 290 295 300

Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro
 305 310 315 320

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Ser Ser
 325 330 335

Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys
 340 345 350

Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly
 355 360 365

Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Gly Gly Asp Pro
 370 375 380

Ser Glu Asn Lys Lys Lys Val Glu Val Ile Asp Leu Thr Ile Glu Ser
 385 390 395 400

Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Ser Val
 405 410 415

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Val Leu Thr
 420 425 430

Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr
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 485 490 495

Asp Glu Gln Asp Ala Leu Gly His Phe Phe Gln Tyr Arg Gly Thr Pro
 500 505 510

Ser His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Cys
 515 520 525

Ser Ala Thr Pro Ala Pro Pro Gly Arg Val Ser Ser Ile Val Ala
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 Gly Leu Gln Tyr Ser Pro Val Gln Gly Gly Asp Pro Ser Glu Asn Lys
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 Glu Asp Leu

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Leu	Pro	Gln	Pro	Val	His	Pro	Asp	Val	Thr	Met	Lys	Pro	Leu	Pro	Phe
65					70					75					80
Tyr	Glu	Val	Tyr	Gly	Glu	Leu	Ile	Arg	Pro	Thr	Thr	Leu	Ala	Ser	Thr
				85					90					95	
Ser	Ser	Gln	Arg	Phe	Glu	Glu	Ala	His	Phe	Thr	Phe	Ala	Leu	Thr	Pro
			100					105					110		
Gln	Gln	Xaa	Gln	Gln	Ile	Leu	Thr	Ser	Arg	Glu	Val	Leu	Pro	Gly	Ala
		115					120					125			
Lys	Leu	Asp	Tyr	Thr	Ile	Gln	Val	Gln	Leu	Arg	Phe	Cys	Leu	Cys	Glu
	130					135					140				
Thr	Ser	Leu	Pro	Gln	Glu	Asp	Tyr	Phe	Pro	Pro	Asn	Leu	Phe	Val	Lys
145					150					155					160
Val	Asn	Gly	Lys	Leu	Cys	Pro	Leu	Pro	Gly	Tyr	Leu	Pro	Pro	Thr	Lys
				165					170					175	
Asn	Gly	Ala	Glu	Pro	Lys	Arg	Pro	Ser	Arg	Pro	Ile	Asn	Ile	Thr	Pro
			180					185					190		
Lys	Ala	Arg	Leu	Ser	Ala	Thr	Val	Pro	Asn	Thr	Ile	Val	Val	Asn	Trp
		195					200					205			
Ser	Ser	Glu	Phe	Gly	Arg	Asn	Thr	Ser	Leu	Ser	Val	Tyr	Leu	Val	Arg
	210					215					220				
Gln	Leu	Thr	Ala	Gly	Thr	Leu	Leu	Gln	Lys	Leu	Arg	Ala	Lys	Gly	Ile
225					230					235					240
Arg	Asn	Pro	Asp	His	Ser	Arg	Ala	Leu	Ile	Lys	Gly	Lys	Leu	Thr	Ala
				245					250					255	
Asp	Pro	Asp	Ser	Gly	Val	Ala	Thr	Thr	Ser	Leu	Arg	Val	Ser	Leu	Met
			260					265					270		
Cys	Pro	Leu	Gly	Lys	Met	Arg	Leu	Thr	Val	Pro	Cys	Arg	Ala	Leu	Thr

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275					280					285					
Cys	Ala	His	Leu	Gln	Ser	Phe	Ser	Ala	Ala	Leu	Tyr	Leu	Gln	Met	Asn
290					295					300					
Glu	Lys	Pro	Thr	Trp	Thr	Cys	Pro	Val	Cys	Asp	Lys	Lys	Ala	Pro	Trp
305					310					315					320
Glu	Ser	Leu	Ile	Ile	Asp	Gly	Leu	Phe	Met	Glu	Ile	Leu	Xaa	Ser	Cys
				325					330					335	
Ser	Asp	Cys	Asp	Glu	Ile	Gln	Phe	Met	Glu	Asp	Gly	Ser	Thr	Cys	Pro
			340					345					350		
Met	Lys	Pro	Lys	Lys	Glu	Ala	Ser	Glu	Val	Cys	Pro	Pro	Pro	Gly	Tyr
		355					360					365			
Gly	Leu	Asp	Gly	Leu	Gln	Tyr	Ser	Pro	Val	Gln	Xaa	Gly	Xaa	Pro	Ser
370					375					380					
Glu	Asn	Lys	Lys	Xaa	Val	Glu	Val	Ile	Asp	Leu	Thr	Ile	Glu	Ser	Ser
385					390					395					400
Ser	Asp	Glu	Glu	Asp	Leu	Pro	Pro	Thr	Lys	Lys	His	Cys	Xaa	Val	Thr
				405					410					415	
Ser	Ala	Ala	Ile	Pro	Ala	Leu	Pro	Gly	Ser	Lys	Gly	Xaa	Leu	Thr	Ser
			420					425					430		
Gly	His	Gln	Pro	Ser	Ser	Val	Leu	Arg	Ser	Pro	Ala	Met	Gly	Thr	Leu
		435					440					445			
Gly	Xaa	Asp	Phe	Leu	Ser	Ser	Leu	Pro	Leu	His	Glu	Tyr	Pro	Pro	Ala
450					455					460					
Phe	Pro	Leu	Gly	Ala	Asp	Ile	Gln	Gly	Leu	Asp	Leu	Phe	Ser	Phe	Leu
465					470					475					480
Gln	Thr	Glu	Ser	Gln	Tyr	Xaa	Pro	Ser	Val	Ile	Thr	Ser	Leu	Asp	Glu
				485					490					495	
Gln	Asp	Xaa	Leu	Gly	His	Phe	Phe	Gln	Xaa	Arg	Phe	Thr	Pro	Xaa	His
			500					505					510		
Phe	Leu	Gly	Pro	Leu	Ala	Pro	Thr	Leu	Gly	Ser	Ser	His	Xaa	Ser	Ala
		515					520					525			
Thr	Pro	Ala	Pro	Xaa	Pro	Gly	Arg	Val	Ser	Ser	Ile	Val	Ala	Pro	Gly

530

535

540

Xaa Xaa Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser
 545 550 555 560

Leu Thr Gly Cys Arg Ser Asp Ile Xaa Ser Leu Asp
 565 570

<210> 7

<211> 99

<212> PRT

<213> Homo sapiens

<400> 7

Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro Tyr Glu Ser Leu
 1 5 10 15

Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser Cys Ser Asp Cys
 20 25 30

Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys Pro Met Lys Pro
 35 40 45

Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly Tyr Gly Leu Asp
 50 55 60

Gly Leu Gln Tyr Ser Pro Val Gln Glu Gly Asn Gln Ser Glu Asn Lys
 65 70 75 80

Lys Arg Val Glu Val Ile Asp Leu Thr Ile Glu Ser Ser Ser Asp Glu
 85 90 95

Glu Asp Leu

<210> 8

<211> 167

<212> PRT

<213> Homo sapiens

<400> 8

Pro Pro Thr Lys Lys His Cys Ser Val Thr Ser Ala Ala Ile Pro Ala
 1 5 10 15

Leu Pro Gly Ser Lys Gly Val Leu Thr Ser Gly His Gln Pro Ser Ser
 20 25 30

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Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Gly Asp Phe Leu Ser
    35                                40                                45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
    50                                55                                60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His
    65                                70                                75                                80

Tyr Gly Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Ala Leu Gly
    85                                90                                95

His Phe Phe Gln Tyr Arg Gly Thr Pro Ser His Phe Leu Gly Pro Leu
    100                               105                               110

Ala Pro Thr Leu Gly Ser Ser His Cys Ser Ala Thr Pro Ala Pro Pro
    115                               120                               125

Pro Gly Ala Val Ser Ser Ile Val Ala Pro Gly Gly Ala Leu Arg Glu
    130                               135                               140

Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg
    145                               150                               155                               160

Ser Asp Ile Ile Ser Leu Asp
    165

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<210> 9
<211> 167
<212> PRT
<213> Homo sapiens

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<400> 9

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Pro Pro Thr Lys Lys His Cys Pro Val Thr Ser Ala Ala Ile Pro Ala
1      5      10      15

Leu Pro Gly Ser Lys Gly Ala Leu Thr Ser Gly His Gln Pro Ser Ser
    20      25      30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Ser Asp Phe Leu Ser
    35      40      45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
    50      55      60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His

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65              70              75              80
Tyr Ser Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Thr Leu Gly
      85              90              95
His Phe Phe Gln Phe Arg Gly Thr Pro Pro His Phe Leu Gly Pro Leu
      100             105             110
Ala Pro Thr Leu Gly Ser Ser His Arg Ser Ala Thr Pro Ala Pro Ala
      115             120             125
Pro Gly Arg Val Ser Ser Ile Val Ala Pro Gly Ser Ser Leu Arg Glu
      130             135             140
Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg
145              150              155              160
Ser Asp Val Ile Ser Leu Asp
      165

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<210> 10
<211> 98
<212> PRT
<213> synthetic construct

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<220>
<221> misc_feature
<222> (25)..(25)
<223> Xaa = serine or asparagine

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<220>
<221> misc_feature
<222> (61)..(61)
<223> Xaa = glycine or glutamic acid

```

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<220>
<221> misc_feature
<222> (63)..(63)
<223> Xaa = aspartic acid or asparagine

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<220>
<221> misc_feature
<222> (64)..(64)
<223> Xaa = proline or glutamine

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<400> 10

Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro Tyr Glu Ser Leu Ile
1 5 10 15

Ile Asp Gly Leu Phe Met Glu Ile Leu Xaa Ser Cys Ser Asp Cys Asp
20 25 30

Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Leu Pro Met Lys Pro Lys
35 40 45

Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly Tyr Gly Leu Asp Gly
50 55 60

Leu Gln Tyr Ser Pro Val Gln Xaa Gly Xaa Pro Ser Glu Asn Lys Lys
65 70 75 80

Xaa Val Glu Val Ile Asp Leu Thr Ile Glu Ser Ser Ser Asp Glu Glu
85 90 95

Asp Leu

<210> 11

<211> 167

<212> PRT

<213> Rattus norvegicus

<220>

<221> misc_feature

<222> (8)..(8)

<223> Xaa = serine or proline

<220>

<221> misc_feature

<222> (23)..(23)

<223> Xaa = valine or alanine

<220>

<221> misc_feature

<222> (44)..(44)

<223> Xaa = glycine or serine

<220>

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<221> misc_feature
<222> (82)..(82)
<223> Xaa = glycine or serine

<220>
<221> misc_feature
<222> (94)..(94)
<223> Xaa = alanine or threonine

<220>
<221> misc_feature
<222> (101)..(101)
<223> Xaa = tyrosine or phenylalanine

<220>
<221> misc_feature
<222> (106)..(106)
<223> Xaa = serine or proline

<220>
<221> misc_feature
<222> (121)..(121)
<223> Xaa = cysteine or alanine

<220>
<221> misc_feature
<222> (128)..(128)
<223> Xaa = proline or alanine

<220>
<221> misc_feature
<222> (140)..(140)
<223> Xaa = glycine or serine

<220>
<221> misc_feature
<222> (141)..(141)
<223> Xaa = alanine or serine

<220>

<221> misc_feature
 <222> (164)..(164)
 <223> Xaa = isoleucine or valine

<400> 11

Pro Pro Thr Lys Lys His Cys Xaa Val Thr Ser Ala Ala Ile Pro Ala
 1 5 10 15

Leu Pro Gly Ser Lys Gly Xaa Leu Thr Ser Gly His Gln Pro Ser Ser
 20 25 30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Xaa Asp Phe Leu Ser
 35 40 45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
 50 55 60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His
 65 70 75 80

Tyr Xaa Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Xaa Leu Gly
 85 90 95

His Phe Phe Gln Xaa Arg Gly Thr Pro Xaa His Phe Leu Gly Pro Leu
 100 105 110

Ala Pro Thr Leu Gly Ser Ser His Xaa Ser Ala Thr Pro Ala Pro Xaa
 115 120 125

Pro Gly Arg Val Ser Ser Ile Val Ala Pro Gly Xaa Xaa Leu Arg Glu
 130 135 140

Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg
 145 150 155 160

Ser Asp Ile Xaa Ser Leu Asp
 165

<210> 12
 <211> 26
 <212> PRT
 <213> Rattus norvegicus

<400> 12

Ala Thr Gly Ala Ala Gly Ala Thr Cys Ala Ala Ala Gly Ala Gly Cys

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